

Abstract

5 A digital camera system comprising a sensing means for  
sensing an image; modification means for modifying the sensed  
image in accordance with modification instructions input into the  
camera; and an output means for outputting the modified image;  
wherein the modification means includes a series of processing  
elements arranged around a central crossbar switch. The  
processing elements include an Arithmetic Logic Unit (ALU) acting  
under the control of a microcode store wherein the microcode  
store comprises a writeable control store. The processing  
elements can include an internal input and output FIFO for  
storing pixel data utilized by the processing elements and the  
modification means is interconnected to a read and write FIFO for  
reading and writing pixel data of images to the modification  
means. Each of the processing elements can be arranged in a ring  
and each element is also separately connected to its nearest  
neighbours. The ALU accepts a series of inputs interconnected  
via an internal crossbar switch to a series of core processing  
units within the ALU and includes a number of internal registers  
for the storage of temporary data. The core processing units can  
include at least one of a multiplier, an adder and a barrel  
shifter. The processing elements are further connected to a  
common data bus for the transfer of pixel data to the processing  
elements and the data bus is interconnected to a data cache which  
acts as an intermediate cache between the processing elements and  
a memory store for storing the images.